

Claims

1. A test method for testing the operational performance an X-ray facility, comprising the steps of:
 - 5 using an image scanner having at least 16 bit greyscale capability to scan a processed X-ray film bearing a test image having known image features at known locations, to create an electronic version of the image; and
 - using a programmed computer to measure the optical density of selected of the known features of the electronic image, to calculate predetermined performance
 - 10 indicators, and to deliver a report of operational performance.
2. A method according to claim 1, wherein the X-ray facility is an X-ray film processor.
3. A method according to claim 1, wherein the image scanner is a low cost commercially available flat bed scanner.
- 15 4. A method according to claim 1, wherein the film is calibrated.
5. A method according to claim 1, wherein the locations of the test image features are predictable in the scanned image.
6. A method according to claim 5, wherein a template on the scanning bed is used to ensure the locations of the test image features are predictable in the scanned image.
- 20 7. A method according to claim 1, wherein the test image comprises a sensitometric strip or a phantom image.
8. A method according to claim 1, wherein the programmed computer is remote from the scanner and the electronic image is sent to the computer over the Internet.
9. A method according to claim 8, wherein the performance indicators include
- 25 Speed Step (also known as "Mid Density"), Contrast Index (also known as "Density Difference), Base + Fog, Dmax and the Average Gradient.
10. A method according to claim 9, wherein the report of operational performance includes the data, and the layout, of the report templates of Figs. 2 or 3, and indicates whether the X-ray facility including the X-ray generator, the film processor, and the
- 30 screen-film combination processor is operating within predetermined tolerances.
11. A method according to claim 1, wherein a charge is raised on the basis of a fee for each report.
12. A test system for testing the operational performance an X-ray facility, comprising:

an image scanner having at least 16 bit greyscale capability to scan a processed X-ray film bearing a test image having known image features at known locations, to create an electronic version of the image; and

5 a programmed computer to measure the optical density of selected of the known features of the electronic image, to calculate predetermined performance indicators, and to deliver a report of operational performance.

13. A system according to claim 12, wherein the X-ray facility is an X-ray film processor.

14. A system according to claim 12, wherein the image scanner is a low cost
10 commercially available flat bed scanner.

15. A system according to claim 12, wherein the film is calibrated.

16. A system according to claim 12, wherein the locations of the test image features are predictable in the scanned image.

17. A system according to claim 16, wherein a template on the scanning bed is used
15 to ensure the locations of the test image features are predictable in the scanned image.

18. A system according to claim 12, wherein the test image comprises a sensitometric strip or a phantom image.

19. A system according to claim 12, wherein the programmed computer is remote from the scanner and the electronic image is sent to the computer over the Internet.

20. A system according to claim 19, wherein the performance indicators include
20 Speed Step (also known as "Mid Density"), Contrast Index (also known as "Density Difference), Base + Fog, Dmax and the Average Gradient.

21. A system according to claim 20, wherein the report of operational performance includes the data, and the layout, of the report templates of Figs. 2 or 3, and indicates.
25 whether the X-ray facility including the X-ray generator, the film processor, and the screen-film combination processor is operating within predetermined tolerances.

22. A system according to claim 21, wherein a charge is raised on the basis of a fee for each report.

23. A flat bed scanner having at least 16 bit greyscale capability and calibrated to
30 scan a processed X-ray film bearing a test image having known image features at known locations, to create an electronic version of the image in which the locations of the test image features are predictable.

24. A flat bed scanner according to claim 23, wherein the scanner is a low cost commercially available flat bed scanner.

25. A flat bed scanner according to claim 23, in combination a template on the scanning bed to ensure the locations of the test image features are predictable in the scanned image.
26. A flat bed scanner according to claim 23, wherein the test image comprises a sensitometric strip or a phantom image.
27. A programmed computer to measure the optical density of selected known features of an electronic version of a test image having known image features at known locations, to calculate predetermined performance indicators, and to deliver a report of operational performance.
28. A programmed computer according to claim 27, wherein the test image comprises a sensitometric strip or a phantom image.
29. A programmed computer according to claim 27, wherein the electronic version of the test image is produced by an X-ray film processor.
30. A programmed computer according to claim 29, wherein the programmed computer is remote from the X-ray film processor and the electronic image is sent to the computer over the Internet.
31. A programmed computer according to claim 27, wherein the performance indicators include Speed Step (also known as "Mid Density"), Contrast Index (also known as "Density Difference), Base + Fog, Dmax and the Average Gradient.
32. A programmed computer according to claim 31, wherein the report of operational performance includes the data, and the layout, of the report templates of Figs. 2 or 3, and indicates whether the X-ray facility including the X-ray generator, the film processor, and the screen-film combination processor is operating within predetermined tolerances.
33. A programmed computer according to claim 32, wherein a charge is raised on the basis of a fee for each report.
34. A computer program to measure the optical density of selected known features of an electronic version of a test image having known image features at known locations, to calculate predetermined performance indicators, and to deliver a report of operational performance.
35. A computer program according to claim 34, wherein the test image comprises a sensitometric strip or a phantom image.
36. A computer program according to claim 34, wherein the electronic version of the test image is produced by an X-ray film processor.

37. A computer program according to claims 34, wherein the performance indicators include Speed Step (also known as "Mid Density"), Contrast Index (also known as "Density Difference), Base + Fog, Dmax and the Average Gradient.

5 38. A computer program according to claim 37, wherein the report of operational performance includes the data, and the layout, of the report templates of Figs. 2 or 3, and indicates whether the X-ray facility including the X-ray generator, the film processor, and the screen-film combination processor is operating within predetermined tolerances.

10 39. A computer program according to claim 38, wherein a charge is raised on the basis of a fee for each report.

40. A signal transmitted from a scanner containing an electronic version of a test image having known image features at known locations, to a computer where the optical density of selected of the known features of the electronic image is measured, predetermined performance indicators are calculated, and a report of operational
15 performance is prepared.